

CLAIMS

1. A semiconductor substrate comprising, on the semiconductor substrate, a strained semiconductor layer which is made of the same material as the semiconductor substrate.
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2. The semiconductor substrate according to claim 1, wherein the material of the semiconductor substrate and the strained semiconductor layer is silicon.

10 3. A semiconductor substrate manufacturing method, comprising:

a first step of forming a strained semiconductor layer which is made of a first material on a semiconductor substrate which is made of a second material at least whose surface functions as a strain induction material to prepare a first substrate;
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a second step of bonding the strained semiconductor layer of the first substrate to a second substrate which is made of the first material; and

20 a third step of removing a member on a side of the first substrate except the strained semiconductor layer and leaving the strained semiconductor layer on the second substrate.

4. The semiconductor substrate manufacturing method according to claim 3, wherein the first material is silicon.
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5. The semiconductor substrate manufacturing

method according to claim 3, wherein the first material is silicon, and the second material is $\text{Si}_{1-x}\text{Ge}_x$ ($0 < x \leq 1$).

6. The semiconductor substrate manufacturing
5 method according to claim 3, wherein the semiconductor substrate is a substrate having a strain induction layer formed on a surface.

7. The semiconductor substrate manufacturing
method according to claim 6, wherein the semiconductor
10 substrate is a substrate obtained by forming the strain induction layer on a silicon substrate.

8. The semiconductor substrate manufacturing
method according to claim 6, wherein a separation layer is formed under the strain induction layer.

15 9. The semiconductor substrate manufacturing method according to claim 6, wherein the strain induction layer also serves as a separation layer.

10. The semiconductor substrate manufacturing
method according to claim 8, wherein removal of the
20 member on the side of the first substrate in the third step comprises a step of separating a partial member on the side of the first substrate at the separation layer.

11. The semiconductor substrate manufacturing
25 method according to claim 6, wherein the strain induction layer is essentially made of silicon and an additional material.

12. The semiconductor substrate manufacturing method according to claim 11, wherein the strain induction layer is essentially made of SiGe.

13. The semiconductor substrate manufacturing
5 method according to claim 8, wherein the separation layer is essentially made of a porous material.

14. The semiconductor substrate manufacturing method according to claim 13, wherein the porous material is one of porous Si or porous SiGe.

10 15. The semiconductor substrate manufacturing method according to claim 9, wherein the strain induction layer which also serves as the separation layer is essentially made of porous SiGe.

16. The semiconductor substrate manufacturing
15 method according to claim 10, wherein in the third step, the member on the side of the first substrate except the strain induction layer, which remains on a side of the second substrate, is removed after the separation step at the separation layer.

20 17. The semiconductor substrate manufacturing method according to claim 3, wherein the third step comprises a step of, after only the strain induction layer is left on the second substrate, planarizing a surface of the strain induction layer.

25 18. The semiconductor substrate manufacturing method according to claim 9, wherein the strain induction layer which also serves as the separation

layer is a porous layer in which the strain induction material to seal at least surface pores is introduced.

19. A semiconductor substrate manufactured by a method of claim 3.

5 20. A semiconductor device having a transistor formed on a strain induction layer of a semiconductor substrate of claim 1.